

What is claimed is:

1 . A spring device comprising a coil spring case formed of right, left, back and front side plates and a spring receiving plate, a coil spring having a liner spring property, and a spring urging member for urging the coil spring into the coil spring case, a distance between the right and left side plates of the spring case being set a little larger than an outer diameter of the coil spring, a distance between the back and front side plates of the spring case being set about 1.5 to 2 times larger than the outer diameter of the coil spring, and a length of the spring case being set smaller than a free length of the coil spring, wherein the coil spring is deformed and a non-linear spring property is obtained when the coil spring is urged by the spring urging member.

2 . The spring device as claimed in claim 1, wherein a ratio of the distance between the right and left side plates and the distance between the back and front side plates is varied arbitrarily.

3 . A brush type small DC motor having a brush urging spring device, the brush urging spring device comprising a brush holder, a coil spring having a liner spring property inserted into the brush holder, and a brush having a connecting portion for connecting the brush and the coil spring, the brush holder being formed of side plates arranged in the upstream and downstream sides in a rotary direction of the motor, an axial side plate, a spring receiving plate, and a side surface of a bracket, a distance between the side plates of the brush holder being set a little larger than an outer diameter of

the coil spring, so that the coil spring is movable freely in the brush holder, a distance between the axial side plate of the brush holder and the side surface of the bracket being set about 1.5 to 2 times larger than the outer diameter of the coil spring, and a length of the brush holder being set smaller than a free length of the coil spring, wherein the coil spring is deformed and a non-linear spring property is obtained when the coil spring is urged by the brush urging spring device.

4. The brush type small DC motor as claimed in claim 3, wherein a ratio of the distance between the side plates and the distance between the axial side plate and the bracket side surface is varied arbitrarily.

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